REMARKS

Claims 1-19, 22-23, 42-43, 49 and 50 are pending. Reconsideration of claims 22, 23 and 50 is requested.

Allowed Claims

Claims 1-19, 42, 43 and 49 are allowed.

Information Disclosure Statement

An Information Disclosure Statement listing references and documents filed in a litigation regarding the parent patent (USP 7,049,433) is filed herewith. The litigation has since been dismissed without prejudice and all of the claims of the parent patent remain valid and enforceable – that is, the claims of the parent application were not held to be invalid in view of the cited references.

Rejection of Claims 22, 23 and 50 under § 103

Claims 22-23 and 50 are rejected under § 103(a) as allegedly being unpatentable over Hicks (Oikos, Vol. 42, pp. 355-360 (1984)). Applicants traverse.

Hicks converts chitin extracted from fungi to glucosamine for estimating the amount of fungal biomass in cultures and in natural substrates in order to identify the change in glucosamine concentration depending upon the biomass age (Item 1, Introduction, page 356). Saltwater fungi were used for the procedure (Item 2, page 356). The mycelium was stripped from the *Spartina*-leaf substrate and "contaminating particles" were removed – there is no explanation as to what qualified as "contaminating particles." (Item 2, page 356.) The dried mycelium was then "pre-extracted" multiple times using hexane and 0.01 N HCl (0.04 %) to remove "free glucosamine and lipid glucosamine" (Item 2.1, p. 356). The extracted sample was flushed with N_2 and sealed for 16 hours and then the solids were separated from the extracted sample between hexane extractions. The hexane extractions were repeated twice more. At that point the extracted sample was frozen until 6 N HCl (about 22% acid) was added and the mixture flushed with N_2 at 100°C for 11 hours. It is this last step – treating the extract sample with acid – which the Examiner cites to reject claims 22, 23 and 50.

Hicks fails to teach or suggest the presently claimed methods because Hicks does not react fungal biomass with HCl having an acid concentration of 9% to 20%.

As to **claim 22** – the Hicks reference does not react a fungal biomass in 9% to 20% HCl. Instead, Hicks reacts only an extracted portion of a fungal biomass with 6 N HCl.

More particularly, the recited "fungal biomass" in the claims that is reacted in step (b) with HCl, refers to the biomass of a fungi that includes all of the intercellular components of the fungal cells such as nucleic acids, lipids, proteins, glucans, sugars and other metabolic compounds and components. See the Application at page 3, lines 7-10; page 6, line 1-3; page 12, lines 10-30; page 13, lines 7-9; page 16, lines 12-16. Accordingly, claim 22 requires that the fungal biomass contain all components - lipids, proteins, fatty acids, amino acids, nucleic acids (e.g., DNA and RNA) and other saccharides, as well as the fermentation products of the organism.

The Examiner improperly asserts that Hicks discloses "reacting fungal biomass with 6 N HCl ...." Office Action page 2. But in fact, Hicks does not disclose reacting "fungal biomass" as recited in subpart (b) of claim 22. Rather, the material that Hicks "reacts with 6 N HCl" is a "pre-extracted" portion taken from a frozen mycelium – that mycelium first being repeatedly extracted using hexane to produce a pre-extracted sample that explicitly excludes "free glucosamine and lipid glucosamine" and implicitly excludes lipids, fatty acids and many of the proteins, all of which would be soluble in hexane and thus absent from the "pre-extracted sample" of Hicks. See Hicks page 365 at Item 2.1. Accordingly, Hicks does not react the fungal biomass with 6 N HCl. This distinction is important.

Put another way, the fungal biomass recited in claim 22 contains much more than the extracted portion of the pre-extracted sample that Hicks reacts with 6 N HCl. Since an acid processing step alone would leave behind various components otherwise present in a fungal biomass, Hicks takes steps to pre-treat (extract with hexane) portions of the fungal biomass and reacts only those components remaining after the hexane extractions, with the 6 N HCl. The Hicks' analytic procedures used thereafter to determine the amount of amino sugars present likely require that "contaminants" and "interfering materials" present in an intact fungal biomass be removed. Hicks does not teach or suggest reacting fungal biomass with 6 N HCl.

To support a *prima facie* case of obviousness all of the elements of the recited process must be taught or suggested. A January 2008 Board of Patent Appeals and Interferences decision entitled *In re Wada and Murphy* reversed a § 103 rejection because the Examiner did not explain where or how cited art taught or suggested all of the features of a claimed invention. Of particular interest is the following BPAI articulation of applicable law:

> When determining whether a claim is obvious, an examiner must make "a searching comparison of the claimed invention - including all its limitations - with the teaching of the prior art." *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, "obviousness requires a suggestion of all limitations in a claim." *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003). Moreover, as the Supreme Court recently stated, "there must be some articulated reasoning with

some rational underpinning to support the legal conclusion of obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007).

Because Hicks fails to teach or suggest reacting a fungal biomass with the recited HCl, claim 22 is allowable over the Hicks reference.

Claim 50 is allowable for the same reasons as set forth above in relation to claim 22 and because claim 50 further recites "providing a chitin-containing fungal biomass which fungal biomass has not been pretreated to release proteins, lipids and/or polysaccharides therein ...". Clearly the hexane extractions required by Hicks remove such components and thus, Hicks teaches a process that is in direct contradiction to the claim 50 recited process. Accordingly, claim 50 is allowable over the Hicks reference.

Claim 23 is allowable for the same reasons as set forth above in relation to claim 22 and because claim 23 further recites that "the reaction takes place at a pressure of about 2 atmospheres or greater." There is no teaching or suggestion in Hicks for such a reaction pressure during the treating of a fungal biomass with an acid as recited in present claim 23. Accordingly, claim 23 is allowable over Hicks.

Request for Interview

If any issues remain, the Examiner is hereby formally requested to contact the undersigned attorney prior to issuance of the next Office Action in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution. This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

Respectfully submitted,

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